

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/14539

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K31/426 A61K31/194 A61K31/235 A61P3/10 C07C321/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data, EMBASE, BIOSIS, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X | EP 0 885 869 A (JAPAN TOBACCO INC) 23 December 1998 (1998-12-23) cited in the application tables 27-29 | 1,3-8, 26,27 |
| X | NAOKI ET AL.: "A novel enhancer of insulintrophic action by high glucose (JTT-608) stimulates insulin secretion from pancreatic beta cells via a new cellular mechanism" JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, vol. 297, no. 3, 2001, pages 953-960, XP002263095 the whole document | 1-6,8, 12,26,27 |



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the International search

30 April 2004

Date of mailing of the International search report

28/05/2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| X | OHTA ET AL.: "JTT-608 controls blood glucose by enhancement of glucose-stimulated insulin secretion in normal and diabetes mellitus rats" EUROPEAN JOURNAL OF PHARMACOLOGY, vol. 367, 1999, pages 91-99, XP002263096 the whole document --- | 1-6,8, 12,26,27 |
| X | WO 01/90092 A (BIOVITRUM AB ;KURZ GUIDO (SE); NILSSON MARIANNE (SE)) 29 November 2001 (2001-11-29) page 7, line 1 page 8 -page 12 --- | 1-3, 18-20, 26,27 |
| X | SHIMIZU, MAKOTO ET AL: "Stannous triflate promoted rearrangement of beta.-keto sulfoxides. Synthesis of 1,4-diketones" CHEMISTRY LETTERS (1984), (9), 1531-4, XP009021840 * page 1533, Table 2, products corresponding to entries 1 to 7, 10 to 12 * | 22-24 |
| X | KUNKEL, ELISABETH ET AL: "Ring opening reactions of methyl 2-silyloxycyclopropanecarboxylates to 4-oxoalkanoic acid derivatives" LIEBIGS ANNALEN DER CHEMIE (1984), (4), 802-19, XP001156647 page 804; example D10; table 1 --- | 22 |
| X | MIYASHITA, MASAOKI ET AL: "Michael reaction of conjugated nitro olefins with carboxylic acid dianion and with ester enolates: new synthesis of gamma.-keto acids and gamma.-keto esters" JOURNAL OF ORGANIC CHEMISTRY (1984), 49(16), 2857-63, XP002263097 page 2859; examples 25-27,29,30 --- | 22 |
| X | MARCHAND, NATHALIE J. ET AL: "Synthesis and Reactivity of Cross-Conjugated Polyenones with a Planar Chirality" JOURNAL OF ORGANIC CHEMISTRY (1996), 61(15), 5063-5072, XP002263098 page 5066; examples 28,30 --- | 22 |
| X | TIUS, MARCUS A. ET AL: "Synthesis of (.+-.)-xanthocidin" TETRAHEDRON (1996), 52(47), 14651-14660, XP002263099 page 14653; example 10 --- | 22 |
| | -/-- | |

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP 03/14539

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| X | US 6 288 063 B1 (HA SOOKHEE NICOLE ET AL) 11 September 2001 (2001-09-11) example 3 --- | 26 |
| X | TSCHESCHE, RUDOLF ET AL: "Pteridines. XIV. The synthesis of a urothion analog with a methyl side chain" CHEM. BER. (1956), 89, 1054-64, XP009021835 page 1056; examples VIII,,IX --- | 22 |
| X | REISSIG, HANS ULRICH ET AL: "Selenylation, sulfenylation, and aminomethylation of methyl 2-siloxypropylpropanecarboxylates by Lewis acid-induced ring cleavage" LIEBIGS ANNALEN DER CHEMIE (1986), (11), 1914-23, XP001156435 page 1915; example 7 --- | 22 |
| A | US 5 877 193 A (CESURA ANDREA ET AL) 2 March 1999 (1999-03-02) cited in the application the whole document --- | 1-3, 18-21, 26-28 |
| A | US 6 143 787 A (KERGOAT MICHELINE ET AL) 7 November 2000 (2000-11-07) cited in the application the whole document --- | 1-3, 18-21, 26-28 |
| A | CONNICK ET AL.: "The role of kynurenines in diabetes mellitus" MEDICAL HYPOTHESES, vol. 18, no. 4, 1985, pages 371-376, XP009021813 the whole document ----- | 1-29 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/14539

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|-------------------------------------------|----|---------------------|----------------------------|---------------------|
| EP 0885869 | A | 23-12-1998 | AU 719396 B2 | 11-05-2000 |
| | | | AU 1673297 A | 02-09-1997 |
| | | | BG 102759 A | 30-09-1999 |
| | | | BR 9707588 A | 27-07-1999 |
| | | | EP 0885869 A1 | 23-12-1998 |
| | | | NO 983770 A | 19-10-1998 |
| | | | NZ 331801 A | 26-01-2001 |
| | | | PL 328519 A1 | 01-02-1999 |
| | | | CA 2246725 A1 | 21-08-1997 |
| | | | CN 1216522 A | 12-05-1999 |
| | | | CZ 9802561 A3 | 16-12-1998 |
| | | | HU 9900715 A2 | 28-06-1999 |
| | | | ID 15967 A | 21-08-1997 |
| | | | JP 3104966 B2 | 30-10-2000 |
| | | | JP 9286755 A | 04-11-1997 |
| | | | WO 9730017 A1 | 21-08-1997 |
| WO 0190092 | A | 29-11-2001 | AU 6093101 A | 03-12-2001 |
| | | | AU 6093201 A | 03-12-2001 |
| | | | AU 6283001 A | 03-12-2001 |
| | | | AU 6283101 A | 03-12-2001 |
| | | | AU 6445601 A | 03-12-2001 |
| | | | BR 0111099 A | 15-04-2003 |
| | | | CA 2408142 A1 | 29-11-2001 |
| | | | CA 2408144 A1 | 29-11-2001 |
| | | | CA 2408783 A1 | 29-11-2001 |
| | | | CA 2409697 A1 | 29-11-2001 |
| | | | CN 1430615 T | 16-07-2003 |
| | | | CN 1430614 T | 16-07-2003 |
| | | | CN 1437588 T | 20-08-2003 |
| | | | CN 1438997 T | 27-08-2003 |
| | | | DE 1283831 T1 | 14-08-2003 |
| | | | EP 1283831 A1 | 19-02-2003 |
| | | | EP 1283832 A1 | 19-02-2003 |
| | | | EP 1283834 A1 | 19-02-2003 |
| | | | EP 1283833 A1 | 19-02-2003 |
| | | | HU 0302435 A2 | 29-12-2003 |
| | | | JP 2003534336 T | 18-11-2003 |
| | | | JP 2003534337 T | 18-11-2003 |
| | | | JP 2003534338 T | 18-11-2003 |
| | | | JP 2003534339 T | 18-11-2003 |
| | | | NO 20025585 A | 23-12-2002 |
| | | | NO 20025586 A | 21-01-2003 |
| | | | NO 20025587 A | 21-01-2003 |
| | | | NO 20025588 A | 20-12-2002 |
| | | | WO 0190093 A1 | 29-11-2001 |
| | | | WO 0190090 A1 | 29-11-2001 |
| | | | WO 0190091 A1 | 29-11-2001 |
| | | | WO 0190094 A1 | 29-11-2001 |
| | | | WO 0190092 A1 | 29-11-2001 |
| | | | US 2003176476 A1 | 18-09-2003 |
| | | | US 2003199501 A1 | 23-10-2003 |
| | | | US 2003166689 A1 | 04-09-2003 |
| US 6288063 | B1 | 11-09-2001 | AU 4201799 A | 13-12-1999 |
| | | | EP 1082295 A1 | 14-03-2001 |
| | | | WO 9961413 A1 | 02-12-1999 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/14539

| Patent document cited in search report | | Publication date | Patent family member(s) | | Publication date |
|-------------------------------------------|---|---------------------|----------------------------|---------------|---------------------|
| US 5877193 | A | 02-03-1999 | AU | 725496 B2 | 12-10-2000 |
| | | | AU | 2875297 A | 29-01-1998 |
| | | | BR | 9704023 A | 17-11-1998 |
| | | | CA | 2210613 A1 | 19-01-1998 |
| | | | CN | 1176101 A | 18-03-1998 |
| | | | CZ | 9702273 A3 | 18-02-1998 |
| | | | EP | 0819681 A2 | 21-01-1998 |
| | | | HR | 970393 A1 | 30-04-1998 |
| | | | HU | 9701193 A2 | 01-02-1999 |
| | | | IL | 121298 A | 19-03-2001 |
| | | | JP | 2991679 B2 | 20-12-1999 |
| | | | JP | 10067761 A | 10-03-1998 |
| | | | KR | 247672 B1 | 01-04-2000 |
| | | | NO | 973338 A | 20-01-1998 |
| | | | NZ | 328331 A | 28-05-1999 |
| | | | PL | 321203 A1 | 02-02-1998 |
| | | | SG | 91796 A1 | 15-10-2002 |
| | | | TR | 9700653 A2 | 21-02-1998 |
| | | | US | 5958910 A | 28-09-1999 |
| | | | ZA | 9706222 A | 19-01-1998 |
| <hr/> | | | | | |
| US 6143787 | A | 07-11-2000 | FR | 2752422 A1 | 20-02-1998 |
| | | | AT | 208364 T | 15-11-2001 |
| | | | AU | 725440 B2 | 12-10-2000 |
| | | | AU | 3942297 A | 06-03-1998 |
| | | | BR | 9711315 A | 17-08-1999 |
| | | | CA | 2263348 A1 | 26-02-1998 |
| | | | DE | 69708130 D1 | 13-12-2001 |
| | | | DE | 69708130 T2 | 20-06-2002 |
| | | | DK | 925273 T3 | 18-02-2002 |
| | | | EP | 0925273 A1 | 30-06-1999 |
| | | | HK | 1021728 A1 | 22-11-2002 |
| | | | HU | 0004223 A2 | 28-04-2001 |
| | | | JP | 2000506543 T | 30-05-2000 |
| | | | JP | 3105545 B2 | 06-11-2000 |
| | | | NO | 990707 A | 15-02-1999 |
| | | | PL | 331645 A1 | 02-08-1999 |
| | | | SI | 925273 T1 | 30-04-2002 |
| | | | SK | 18099 A3 | 13-03-2000 |
| | | | CN | 1227538 A , B | 01-09-1999 |
| | | | CY | 2298 A | 04-07-2003 |
| | | | CZ | 9900498 A3 | 12-05-1999 |
| | | | WO | 9807681 A1 | 26-02-1998 |
| | | | ES | 2166098 T3 | 01-04-2002 |
| | | | ID | 17875 A | 05-02-1998 |
| | | | PT | 925273 T | 29-04-2002 |
| | | | RU | 2175966 C2 | 20-11-2001 |
| | | | TR | 9900329 T2 | 21-04-1999 |
| | | | TW | 438764 B | 07-06-2001 |
| | | | ZA | 9707327 A | 30-03-1998 |